

# MANUFACTURING EXTENSION PARTNERSHIP

## Success Stories from the Field

### Patrick Industries Inc.

#### Oregon Manufacturing Extension Partnership

#### Lean Manufacturing at Patrick Industries

##### Client Profile:

Patrick Industries, located in Woodburn, Oregon, is a manufacturer of high quality cabinet doors in a variety of styles and materials ranging from raised panel solid wood doors to economically foiled MDF doors. Founded in 1996, the company employs 167 people.

##### Situation:

Patrick Industries' management decided to work with the Oregon Manufacturing Extension Partnership (OMEP), a NIST MEP network affiliate, to help them achieve profitability in the door plant component of their Woodburn operation. The door plant had been facing increased pressures from domestic and foreign competition and had been unprofitable for over 8 years. The company was confronted with a critical need to reach sustained profitability to avoid closing the plant. The company also wanted to prepare for sales in excess of 50 percent of their most recent peak sales period while improving on less than desirable quality and delivery performance. Labor and materials costs were above expectations due to the need for extensive overtime required to produce product and high defect/scrap rates.

##### Solution:

OMEP began with a Value Stream Mapping (VSM) assessment to help the company map its current state to identify capacity constraints, quality issues and recurring delays in existing processes. OMEP used the map to identify where resources could best be allocated in achieving the future state of 100 percent increase in production volume while improving quality and delivery performance. The cycle time constraints identified were in the door assembly and finishing areas. The door assembly process was using a classic batch and queue process that could not support the future state volumes and contributed to product damage during the production process. Doors were stacked on pallets and roller conveyor by job and were processed at each individual workstation as necessary. Order integrity was difficult to maintain due to the practice of combining orders to reduce set-ups. Work in process was stacked over 6 high preventing communication, ease of movement and causing damage to product during the stacking/un-stacking process. OMEP directed Patrick Industries to modify their work processes to achieve a flow of product through the assembly areas. Doors are now produced in single customer order quantities and processed one door at a time to the finishing area. Once a door has started processing it is profiled on all 4 sides, sanded front and back and finish sanded, ready to move to the finishing area, in less than 60 seconds. A focus on set-up time improvements has lowered most set-up times from three quarters of an hour to less than 5 minutes. Finishing capacity has more than doubled. The finishing area was improved by development of a new FIFO job scheduling process, stabilizing the staffing levels, minor equipment modifications and set-up time reduction activities. The finishing area can now easily meet current and expected demand without resorting to new equipment purchases which were being contemplated when OMEP began the engagement.

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Patrick Industries' door plant capacity has more than doubled since initiating activities with OMEP. Production output that used to require multiple shifts and weekend overtime is now completed during the week on straight-time. Activities have addressed production process causes for quality issues and reduced the number of "overbuilds" and scrap by over 95 percent. Manufacturing lead time has been significantly reduced from 10 days to less than 5 days. More importantly, the door plant is profitable now even though Patrick Industries continues to face increased pressures from new foreign competitors.

### Results:

- \* Retained \$5 million in sales in 2005.
- \* Invested \$155,000 in workforce training.
- \* Retained 114 jobs.
- \* Improved labor productivity by 20 percent.
- \* Reduced lead time from 10 days to 5 days.
- \* Increased on-time shipments from 92 percent to 99.9 percent.
- \* Reinvested unused and idle company assets into new equipment.
- \* Achieved \$90,000 in cost savings.
- \* Saved \$220,000 annually due to development, implementation, and improvement of material utilization methods.
- \* Increased raw material usage from 58.5 percent to 61.0 percent.
- \* Reduced overbuilds and scrap by 95 percent.
- \* Improved from \$60,000 in monthly losses to sustained profitability.
- \* Improved employee retention and morale.

### Testimonial:

"Prior to the introduction of Lean Manufacturing our plant was incurring large losses and was on a "watch list" for possible closure. Due to improvements made by the efforts of OMEP and the implementation of lean we have greatly reduced our losses and thus able to continue operations. I am certain had it not been for the introduction and implementation of lean manufacturing that the door plant would not be here today. We continue to work with OMEP to improve our bottom line so that this plant can continue to be a viable money making proposition to our corporation and shareholders. We are very pleased with the relationship we have with OMEP, appreciate greatly their contributions and look forward to continued improvements through the services they provide."

Wes White, General Manager